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**NATIONAL AERONAUTICS**
**AND SPACE ADMINISTRATION**

**NASA-09972 (September 1999)**
**NASA - KSC**
**Superseding NASA-09892**
**(September 1996)**

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SECTION 09972

PROTECTIVE COATING OF CORROSION-RESISTANT STEEL

**09/99**



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SECTION 09972

PROTECTIVE COATING OF CORROSION-RESISTANT STEEL
**09/99**

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**NOTE: Delete, revise, or add to the text in this section to cover project requirements. Notes are for designer information and will not appear in the final project specification.**

**This section covers materials, surface preparation, and the application of a protective coating on stainless steel.**

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PART 1 GENERAL

1.1 REFERENCES (Not Applicable)

1.2 SUBMITTALS

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**NOTE: Review submittal description (SD) definitions in Section 01330, "Submittals," and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control. Include a columnar list of appropriate products and tests beneath each submittal description.**

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The following shall be submitted in accordance with Section 01330, "Submittals," in sufficient detail to show full compliance with the specification:

SD-03 Product Data

Manufacturer's Catalog Data shall be submitted for nitrile rubber base aluminum pigmented coating in accordance with the paragraph entitled, "Delivery, Handling, and Storage," of this section.

SD-07 Certificates

A Safety Plan shall be submitted in accordance with the paragraph

entitled, "Personnel Safety," of this section.

1.3 SCOPE

This section covers materials, surface preparation, and the application of a protective coating on stainless steel.

1.4 DELIVERY, HANDLING AND STORAGE

Materials shall be delivered in their original, unbroken containers bearing the manufacturer's name, product identification, and batch number.

Coatings, thinners, and cleaners shall be stored in tightly closed containers in a covered, well-ventilated area where they will not be exposed to extreme cold or heat, sparks, flame, direct sunlight, or rainfall.

Manufacturer's Catalog Data shall be submitted for nitrile rubber base aluminum pigmented coating.

1.5 PROTECTION OF EQUIPMENT AND ADJACENT SURFACES

All equipment and adjacent surfaces that may be damaged as a result of any phase of this work shall be protected.

1.6 PERSONNEL SAFETY

Necessary precautions shall be taken in accordance with OSHA regulations to ensure safety of personnel engaged in these operations and personnel who may be affected by such operations. Some of the materials to be handled under this specification are combustible or toxic. Using material safety information provided by the manufacturer, the Contractor shall be responsible for providing equipment as required for safe application and instructing the users regarding the hazards and proper handling procedures to prevent damage to health or possible explosion.

A Safety Plan shall be submitted for protective coating systems in accordance with OSHA regulations.

PART 2 PRODUCTS

2.1 PROTECTIVE COATING

Protective coating shall be a nitrile rubber, aluminum pigmented coating and will be provided to the Contractor as government-furnished property (GFP) in accordance with the contract schedule for GFP.

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**NOTE: Designer must ensure that this material is included in the contract schedule for GFP.**

**It is available from KSC Central Supply under FSN 8030-00-485-3656.**

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## PART 3 EXECUTION

### 3.1 SURFACE PREPARATION

All surfaces to be painted shall be clean, dry, and free from oil, grease, dirt, dust, corrosion, peeling paint, and any other surface contaminants.

Surfaces which will become inaccessible after installation of hardware or components shall be prepared and coated while accessible.

Prepared surfaces shall be coated before recontamination can occur, and surface preparation and coating operations shall be sequenced so that freshly applied coatings will not be contaminated by dust or foreign matter.

### 3.2 INSPECTION OF SURFACE PREPARATION

Immediately after the surface has been prepared, it will be inspected by the Contracting Officer to determine compliance with the specification for surface preparation. Any areas not meeting the surface preparation requirements shall be recleaned until approved. No coatings shall be applied until the surface preparation has been approved.

### 3.3 COATING APPLICATION

Application and handling characteristics of all coatings will vary. To obtain optimum performance, adequate instructions from the manufacturer are essential and must be closely followed, in conjunction with the requirements of this specification.

Manufacturer's recommendations for thinning, mixing, handling, and applying his product shall be considered a part of this specification. In the event of conflict between the requirements of this specification and the manufacturer's recommendations, this specification shall take precedence.

Compressed air used for spraying coatings shall be free of moisture and oil.

Each coat of material applied shall be free from runs, sags, blisters, bubbles, variations in color, gloss and texture, holidays (missed areas), excessive film build, foreign contaminants, dry overspray, etc.

No coating shall be applied when rain is imminent or when the temperature or humidity is outside the limits recommended by the coating manufacturer.

All coatings shall be thoroughly worked into all joints, crevices, and open spaces.

All newly coated surfaces shall be adequately protected from damage.

To prevent moisture condensation during application, surface temperature must be at least 5 degrees F 3 degrees C above the dew point.

Apply all coatings by airless spray, conventional spray, or by brush. Airless spray shall be used for large surface areas. Conventional spray

and brushes may be used for small areas of intricate configuration and touchup.

3.3.1 Mixing and Application Procedures

WARNING

THE USE OF COATING MATERIALS CONTAINING HALOGENATED HYDROCARBONS WITH COATING APPLICATION EQUIPMENT THAT HAS ALUMINUM OR GALVANIZED PARTS MAY CAUSE AN EXPLOSION.

1,1,1-TRICHLORETHANE AND METHYLENE CHLORIDE ARE TWO TYPES OF HALOGENATED HYDROCARBONS USED AS SOLVENTS IN COMPLIANCE COATINGS, COMPLIANCE SOLVENTS, AND CERTAIN PAINT STRIPPERS AND ADHESIVES. THESE MATERIALS REACT UNPREDICTABLY WITH ALUMINUM AND GALVANIZED PARTS AND MAY CAUSE CORROSION, WEAKENING OF PARTS, AND SEVERE EXPLOSIONS.

DO NOT USE SOLVENTS OR COATINGS CONTAINING 1,1,1-TRICHLOROETHANE OR METHYLENE CHLORIDE WITH COATING APPLICATION EQUIPMENT (INCLUDING GUNS, PUMPS, AND PRESSURE TANKS) WHERE ALUMINUM OR GALVANIZED PARTS COME IN CONTACT WITH THE SOLVENT OR COATING MATERIAL.

USE ONLY EQUIPMENT MADE OF STEEL OR CORROSION-RESISTANT STEEL WHEN USING HALOGENATED SOLVENTS OR COATINGS.

Stir material thoroughly with a mixing instrument such as a Jiffy Mixer, manufactured by the Jiffy Mixer Company, Inc., San Francisco, California, or equal. Mixer must be powered by an air motor or an explosion-proof electric motor.

Strain the mixed material through a 30 to 60 mesh 600 to 250 micrometer screen.

Provide periodic slow agitation during application to maintain uniform suspension. Avoid continuous rapid agitation.

Thin for workability and improved spray characteristics only. Use only the manufacturers' recommended thinner and amount.

Adjust spray equipment to produce an even wet coat with minimum overspray.

Apply in even parallel passes, overlapping 50 percent to provide complete and uniform coverage. Pay special attention to welds, cut-outs, sharp edges, rivets, crevices, and bolts to ensure proper coverage.

Pressure pot, when used, shall be kept at the same level or above the spray gun for proper material delivery.

3.3.2 Dry-Film Thickness (DFT)

Coatings shall be applied to the dry-film thickness sufficient to provide complete coverage and hiding of the substrate.

## 3.4 TOUCHUP

Abrasions and scratches shall be touched up as follows:

a. Damaged area shall be sanded lightly to smooth and feather the edges.

b. Additional nitrile rubber coating shall be applied

Touched-up areas shall blend in with the surrounding coating.

## 3.5 INSPECTION

Work as described herein will be inspected for compliance with this specification by the Contracting Officer.

In addition, the Contractor shall provide for inspection of his work to ensure that specification requirements have been fulfilled.

-- End of Section --